

## User's Manual



## *SW2 VGAcc and SW2 RGBHVcc*

**VGA and RGBHV switchers**

# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

### Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

### Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

**Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

### Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

### Precaucion

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

## Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de le contourner ni de la désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au reut les batteries usagées conformément aux instructions du fabricant.

## Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf oder unmittelbar dagegestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitzte und Öffnungen** • Wenn das Gerät Schlitzte oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

## Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/ mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

# Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

### USA, Canada, South America, and Central America:

Extron Electronics  
1001 East Ball Road  
Anaheim, CA 92805, USA

### Europe, Africa, and the Middle East:

Extron Electronics, Europe  
Beeldschermweg 6C  
3821 AH Amersfoort  
The Netherlands

### Asia:

Extron Electronics, Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363

### Japan:

Extron Electronics, Japan  
Daisan DMJ Bldg. 6F,  
3-9-1 Kudan Minami  
Chiyoda-ku, Tokyo 102-0074  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

# Quick Start Guide — SW2 VGAcc and SW2 RGBHVcc

Install and operate the SW2 VGAcc and SW2 RGBHVcc switchers as follows:

## Step 1

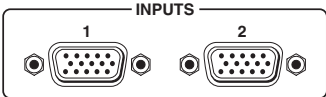
Turn all of the equipment off and disconnect it from the power source.

## Step 2

Mount the switcher in a rack, under furniture, or place on a desktop.

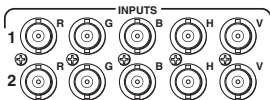
## Step 3

Connect the input cables (VGA or BNC) as shown at right.



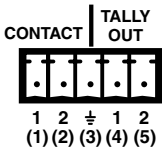
## Step 4

Connect the video output cable(s).



## Step 5

Wire the contact closure/tally out connector appropriately as shown below.



PIN	Tally Out	Contact Closure	Function
1	—	In #1	Input #1 (contact)
2	—	In #2	Input #2 (contact)
3	Gnd	Gnd	Ground
4	In #1	—	Input #1 (tally)
5	In #2	—	Input #2 (tally)

## Step 6

Connect power cords and turn on the equipment in the following order: output devices (projectors, monitors), SW2 switcher, contact closure/tally out, and input devices (computers, etc.).

## Input selection

Select an input using the front panel buttons or the contact closure (momentarily short the control pin to ground). The selected input's LED lights when active.

## Quick Start Guide — SW2 VGAcc and SW2 RGBHVcc

### **Troubleshooting**

If the picture does not appear, do the following:

- Ensure that all devices are plugged in and receiving power.
- Check the cabling and make adjustments as needed.
- Select a different input to check for a display.

For more troubleshooting scenarios, see chapter 3, *Troubleshooting*.

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# 1

## Chapter One

### Introduction

About this Manual

SW2 VGAcc and SW2 RGBHVcc Switchers

Features

# Introduction

## About this Manual

This manual contains information about the Extron SW2 VGAcc and SW2 RGBHVcc switchers, detailing how to operate and configure them.

## SW2 VGAcc and SW2 RGBHVcc switchers

The SW2 VGAcc and SW2 RGBHVcc are input switchers, each with one buffered output and 350 MHz (-3dB) bandwidth (the SW2 VGAcc is shown in figure 1-1).

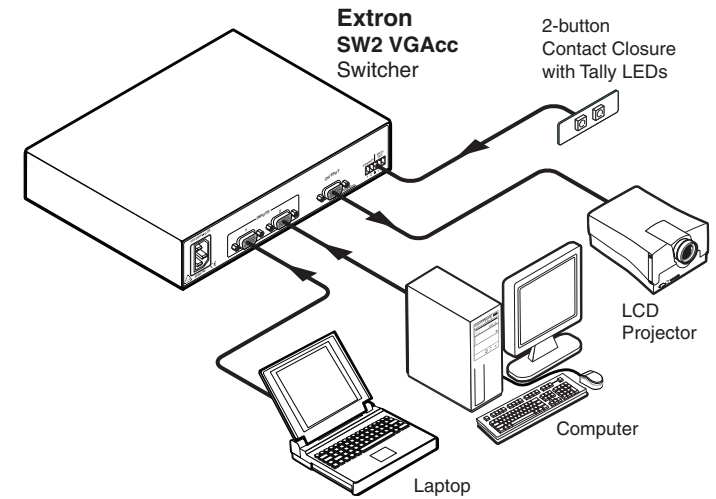
The **SW2 VGAcc** accepts the following signals:

- RGBHV (VGA/SVGA/XGA/XGA2/UXGA)
- RGBS
- RGsB
- RsGsBs

The **SW2 RGBHVcc** accepts the following signals:

- RGBHV
- RGBS
- RGsB
- RsGsBs
- component video
- S-video (Y/C)
- composite video

With an optional Mac/VGA adapter, both switchers can switch Macintosh signals.



**Figure 1-1 — Typical SW2 VGAcc switcher application**

These switchers are housed in 1U, half rack, and 6" deep enclosures with internal universal 100 - 240 VAC 50/60 Hz power supplies. Both models provide contact closure and tally out remote control and feedback capability.

Front panel buttons or contact closure can be used for input selection.

The SW2 VGAcc and SW2 RGBHVcc are high performance video switchers. These switchers are designed to route high resolution source signals to a video projector, monitor, or LCD panel. Users may select the desired input channel using the front panel Channel Select button or via remote control by using a wired remote, a third-party control system, or any other device capable of providing a momentary contact closure.

## Features

**350 MHz Video Bandwidth** — The SW2 models provide high performance, ultra-high resolution video signals with no signal loss.

**Front Panel Channel Selection Button** and LED indicators

**Contact closure /Tally Out** — Contact closure allows for remote selection of an input channel using contact closure.

A tally out status pin provides feedback to a control system to indicate which input is currently selected.

## Introduction, cont'd

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**Rack Mountable** — The units rack mount into a 1U rack space using the optional 19" 1U Universal rack shelf or 6" deep 1U rack shelf. Two units can mount side-by-side on a single rack shelf.



## SW2 VGAcc and SW2 RBGHVcc

# Chapter Two

## Installation

Installation Overview

Mounting the Switcher

Rear Panel Features and Connections

## Installation Overview

To install and set up the SW2 VGAcc and SW2 RGBHVcc switchers, follow these steps:

- 1 Turn all of the equipment off. Make sure that the video (computers or other devices), the SW2 switcher, the output devices (projectors, etc.), and contact closure control device are all turned off and disconnected from the power source.
- 2 Mount the switcher. See *Mounting the Switcher*, below.
- 3 Attach the cables. See *Rear Panel Features and Connections*, later in this chapter.
- 4 Connect power cords and turn on the devices in the following order: output devices (projectors, monitors), SW2 switcher, and input devices (computers, etc.).
- 5 Select an input from the front panel buttons or contact closure controller.
- 6 The picture should now appear. If not, ensure that all cables are plugged in correctly and all devices are receiving power. Check the cabling and make adjustments as needed. Select a different input to check for a display.

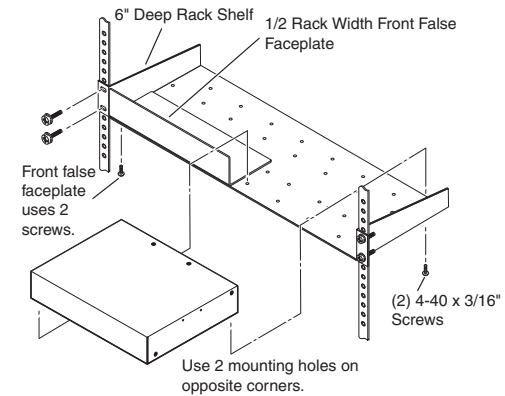
**NOTE** If problems occur, see chapter 3, Troubleshooting.

## Mounting the Switcher

### Rack mounting

For rack mounting, mount the SW2 VGAcc and SW2 RGBHVcc on the optional 1U Universal Rack Shelf (Extron part #60-190-01), the 1U Basic Rack Shelf (#60-604-01) (figure 2-1), the 1U 6" Deep Universal Rack Shelf Kit (#60-190-10), or the 1U 6" Basic Rack Shelf (#60-604-10). The switcher mounts in one of two locations: either to the right or to the left at the front of the rack.

1. If rubber feet were previously installed on the bottom of the switcher, remove them.
2. Mount the SW2 switcher on the rack shelf, using two 4-40 x 3/16 screws in opposite (diagonal) corners to secure the switcher to the shelf (figure 2-1).



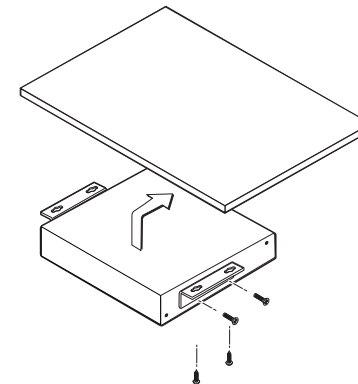
**Figure 2-1 — Rack mounting the switcher**

3. Attach a blank panel or other unit(s) to the rack shelf.
4. Insert the shelf into the rack, aligning the holes in the shelf with those of the rack.
5. Secure the shelf to the rack using the supplied machine screws. This shelf can be mounted in the front or in the rear of the rack.

### Furniture mounting

Both SW2 models can be mounted under furniture, such as a table or podium surface, using optional under-desk mounting brackets (Extron part #70-077-01). Furniture mount the switcher as follows:

1. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4" of the screw protrudes.
2. Align the mounting screws with the slots in the brackets and place the switcher against the surface, with the screws through the bracket slots.
3. Slide the switcher slightly forward or back, then tighten all four screws to secure the switcher in place.



**Figure 2-2 — Under-desk mounting**

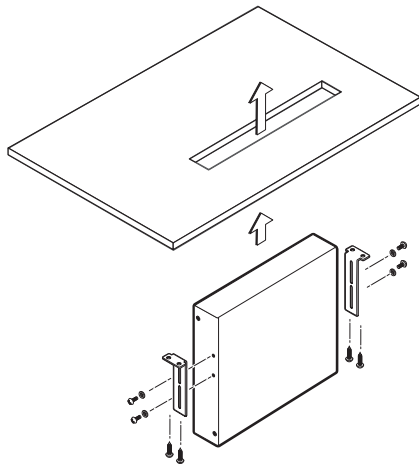


# Installation

## Through-desk mounting

Both SW2 models can be mounted through a table or podium, using optional through-desk mounting brackets (Extron part #70-077-02).

1. Attach the mounting brackets to the switcher with the screws provided (figure 2-3).
2. Cut the proper sized hole in the mounting surface.
3. Hold the switcher with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.
4. Drill 3/32" (2 mm) diameter pilot holes, 1/4" (6.3 mm) deep in the mounting surface at the marked screw locations.
5. Insert four #8 wood screws through the bracket and into the four pilot holes. Tighten all four screws to secure the switcher in place.



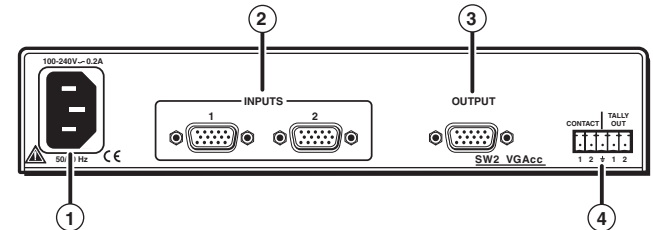
**Figure 2-3 — Through-desk mounting**

## Rear Panel Features and Connections

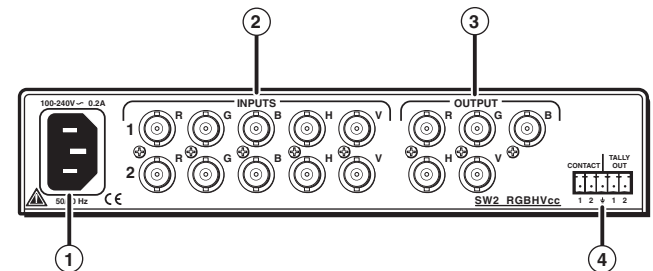
All connectors are on the rear panel. Figure 2-4 shows the rear panel of the SW2 VGAcc switcher, and figure 2-5 shows the rear panel of the SW2 RGBHVcc.

## Power connection

- ① **AC power connector** — Plug a standard IEC power cord into this connector to connect the switcher to a 100 to 240 VAC, 50/60 Hz power source.



**Figure 2-4 — Rear panel – SW2 VGAcc switcher**



**Figure 2-5 — Rear panel – SW2 RGBHVcc switcher**

## Signal input and output connections

- ② **Computer input connectors:**

**SW2 VGAcc** — Connect your computer input (VGA, SVGA, XGA, SXGA, UXGA, RGBHV, RGsB, or RsGsBs computer video) to the 15-pin HD female connectors.

**SW2 RGBHVcc** — Connect your computer input (RGBHV, RGsB, RsGsBs, component video, S-video (Y/C), and composite video) to the BNC female connectors.

3 Output connector :

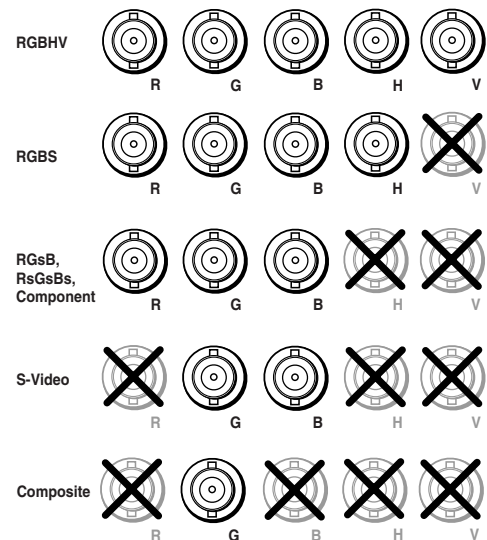


Figure 2-6 — BNC output connector set up

SW2 VGAcc — Connect the output device to the 15-pin HD female connector.

SW2 RGBHVcc — Connect the output device to the 5 BNC female connector.

Remote connection

- 4 Remote contact closure/tally out connector — Connect a control module to this 3.5 mm 5-pole captive screw connector to allow remote switching through contact closure, or activity feedback through tally out.

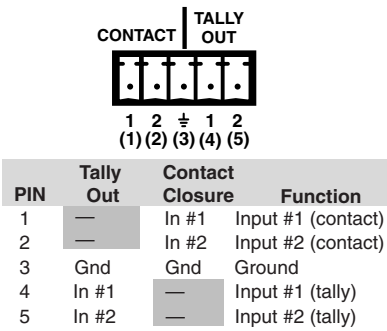


Figure 2-7 — Contact closure and tally out connector pinout



SW2 VGAcc and SW2 RGBHVcc

# Chapter Three

## Operation

Front Panel Controls and Indicators

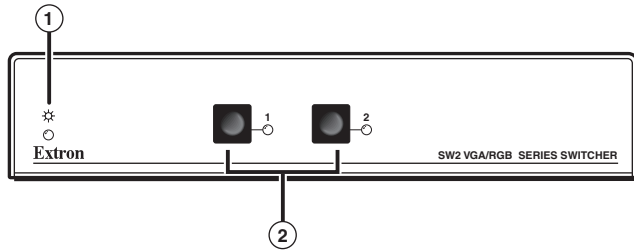
Troubleshooting

### Front Panel Controls and Indicators

Figure 3-1 shows the controls and indicators on the front panel of the SW2 VGAcc and SW2 RGBHVcc switchers (the front panels of the two models are identical).

#### Front panel buttons and LEDs

- ① **Active LED** — A lit LED indicates that the switcher is active.



**Figure 3-1 — Front panel (SW2 VGAcc and SW2 RGBHVcc front panels are identical.)**

- ② **Input selection buttons and LEDs** — Use the front panel buttons to manually select between inputs 1 or 2. The LED of the selected input lights when active.

#### Front Panel Operations

Select input 1 or 2 by pressing the appropriate input button. The corresponding input LED lights.

### Troubleshooting

**Problem:** *The display device connected to the switcher output has a bad/scrambled image.*

**Solution 1:** The display device connected to the output of the switcher may not be compatible with the computer's video output. VGA / SVGA / XGA / SXGA graphics cards operate at multiple resolutions and refresh rates with newer modes (such as 1920 x 1400) running as high as 79 KHz. Check the operation manual on both the computer graphics card and the display device to ensure that they are compatible.

**Solution 2:** The RGB, VGA, or MAC input or output cable may have a bad sync line. Try running the sync through another cable.

**Problem:** *The unit does not pass any signals.*

**Solution:** Verify that the unit is getting power by checking the front LED. If the LED is not on, the AC power source may be faulty or the unit may have an internal failure.

**Problem:** *When controlling the switcher through the contact closure port, Input 2 can be selected for an instant, but then the unit quickly switches back to Input 1.*

**Solution:** The control system may be providing a latching contact closure. The SW2 models require a momentary closure to select Input 2.

**Problem:** *When connecting a MAC Quadra computer directly to the SW2 VGAcc input, the computer is booting up in the 13" RGB monitor resolution (640 X 480). How can the computer be forced to boot in the 21" mode?*

**Solution:** Use a P/2 DA2xi distribution amplifier to split the signal between the local monitor and the switcher input. The computer sees the 21" local monitor attached to the P/2 DA2xi loop through connector and boots up in that high resolution mode.

If you are still experiencing problems, call the Extron S<sup>3</sup> Sales & Technical Support Hotline for further assistance.



# 4

## **Chapter Four**

### **Remote Control**

Contact Closure/Tally Out Control

Contact Closure/Tally Out Control

The contact closure/tally out port provides a way to remotely select an input to the switcher or access feedback.

Contact closure

To select a different input number (Input 1 or Input 2) using a contact closure device, momentarily short the pin for the desired input number to logic ground (pin 3). To force one of the inputs to be always selected, leave the short to logic ground in place. The short overrides front panel input selections.

The contact closure pin assignments are shown in the table on page 2-6.

Tally out

Pins 4 and 5 provide feedback to a control system. This feedback can be accessed from a MediaLink controller or similar remote system.

Pin output voltage	Input 1 selected	Input 2 selected
3	GND	GND
4	5V	0V
5	0V	5V

Figure 3-1 — Active voltages for pins 4 and 5



SW2 VGAcc and SW2 RBGHVcc

Appendix A

Reference Information

- Specifications
- Switchers
- Included Parts
- Cables
- Accessories

# Specifications, Part Numbers, and Accessories

## Specifications

### Video

Gain .....	Unity
Bandwidth .....	350 MHz (-3 dB)
Crosstalk .....	<-68dB @ 10 MHz
Switching speed .....	5 ms (max.)

### Video input

Number/signal type	
SW2 VGAcc .....	2 VGA–UXGA RGBHV, RGBS, RGsB, RsGsBs computer video
SW2 RGBHVcc .....	2 RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, composite video
Connectors	
SW2 VGAcc .....	2 female 15-pin HD
SW2 RGBHVcc .....	2 x 5 female BNC
Nominal level .....	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB 0.3 Vp-p for R-Y and B-Y of component video, and for C of S-video
Minimum/maximum levels .....	Analog: 0.3 V to 1.5 Vp-p with no offset
Impedance .....	75 ohms
Horizontal frequency .....	15 kHz to 145 kHz
Vertical frequency .....	30 Hz to 179 Hz
Return loss .....	<-42 dB @ 5 MHz
DC offset (max. allowable) .....	1.7 V

### Video output

Number/signal type	
SW2 VGAcc .....	1 VGA–UXGA RGBHV, RGBS, RGsB, RsGsBs computer video
SW2 RGBHVcc .....	1 RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, composite video, (follows input type)
Connectors	
SW2 VGAcc .....	1 female 15-pin HD
SW2 RGBHVcc .....	5 female BNC

Nominal level .....	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB 0.3 Vp-p for R-Y and B-Y of component video, and for C of S-video
Minimum/maximum levels .....	0.3 V to 1.5 Vp-p (follows input)
Impedance .....	75 ohms
Return loss .....	<-43 dB @ 5 MHz
DC offset .....	±5 mV with input at 0 offset

### Sync

Input type .....	RGBHV, RGBS, RGsB, RsGsBs
Output type .....	RGBHV, RGBS, RGsB, RsGsBs (follows input)
Input level .....	Analog or TTL, 1.7 V to 5.0 Vp-p
Output level .....	5.0 Vp-p, unterminated
Input impedance .....	510 ohms
Output impedance .....	50 ohms
Max. propagation delay .....	30 ns
Max. rise/fall time .....	4 ns
Polarity .....	Positive or negative (follows input)

### Control/remote — switcher

Contact closure/tally .....	(1) 3.5 mm captive screw connector, 5 pole
Contact closure and tally pin configurations	1 = input 1 contact closure, 2 = input 2 contact closure, 3 = GND, 4 = input 1 tally output, 5 = input 2 tally output

### General

Power .....	100 VAC to 240 VAC, 50/60 Hz, 7 watts, internal, autoswitchable
Temperature/humidity .....	Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, noncondensing Operating +32° to +122°F (0° to +50°C) / 10% to 90%, noncondensing
Rack mount .....	Yes, with optional 1U rack shelf, part #60-190-01, 60-190-10, 60-604-01, or 60-604-10 Also furniture mountable with an optional Under-desk Mounting kit, #70-077-01
Enclosure type .....	Metal

Specifications, Part Numbers, Accessories, cont'd

Enclosure dimensions .....	1.7" H x 8.7" W x 6.0" D (1U high, half rack wide) 4.3 cm H x 22.1 cm W x 15.2 cm D (Depth excludes connectors.)
Product weight .....	2 lbs (1 kg)
Shipping weight .....	4 lbs (2 kg)
Vibration .....	ISTA 1A in carton (International Safe Transit Association)
Listings .....	UL, CUL
Compliances .....	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF .....	30,000 hours
Warranty .....	3 years parts and labor

**NOTE** All nominal levels are at ±10%

**NOTE** Specifications are subject to change without notice.

Switchers

Models	Part number
SW2 VGAcc	60-679-01
SW2 RGBHVcc	60-680-01

Included Parts

Included Parts
IEC power cord
Tweezer
SW2 VGAcc and SW2 RGBHVcc User's Manual
3.5 mm, 5-pole captive screw connector
Rubber feet (4)

Cables

Male-to-Male BNC Cables	Part number
BNC-5 3' MHR	26-260-15
BNC-5 6' MHR	26-260-01
BNC-5 12' MHR	26-260-02
BNC-5 25' MHR	26-260-03

Male-to-Male VGA Cables	Part number
VGA 3' MHR	26-238-14
VGA 6' MHR	26-238-01
VGA 10' MHR	26-238-07
VGA 15' MHR	26-238-02

Accessories

Accessories	Part number
1U Universal Rack Shelf	60-190-01
1U Basic Rack Shelf	60-604-01
1U 6" Deep Universal Rack Shelf Kit	60-190-10
1U 6" Deep Basic Rack Shelf	60-604-10
Under-desk Mounting Kit	70-077-01
Through-desk Mounting Kit	70-077-02
Mac HV/VGA adapter	26-340-02
SY-VGA/Male to 5 BNC female adaptor	26-531-01